

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-5. (Canceled).

6. (Previously Presented): A linear diene elastomer resulting from at least one conjugated diene, wherein said diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 50,000 to 300,000 g/mol,

which comprises a mass fraction of units resulting from conjugated dienes of greater than 30% and consists of a butadiene homopolymer or a copolymer of butadiene and a vinyl aromatic compound.

7. (Currently Amended): A linear diene elastomer according to Claim ~~1-6~~, wherein said mass content of cyclic vinyl units is greater than or equal to 35%.

8. (Currently Amended): A branched diene elastomer resulting from at least one conjugated diene and capable of being obtained by reaction of a linear diene elastomer according to Claim ~~1-6~~ with a branching agent, wherein said branched diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 30,000 to 350,000 g/mol.

9. (Previously Presented): A branched diene elastomer according to Claim 8, wherein said number-average molecular weight falls within a range of from 150,000 to 350,000 g/mol.

10. (Previously Presented): A branched diene elastomer according to Claim 8, wherein said mass content of cyclic vinyl units is greater than or equal to 20%.

11. (Previously Presented): A branched diene elastomer according to Claim 8, which comprises a mass fraction of units resulting from conjugated dienes of greater than 30%.

12. (Previously Presented): A branched diene elastomer resulting from at least one conjugated diene and capable of being obtained by reaction of a linear diene elastomer resulting from at least one conjugated diene, wherein said diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 50,000 to 300,000 g/mol, with a branching agent, wherein said branched diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 30,000 to 350,000 g/mol,

which comprises a mass fraction of units resulting from conjugated dienes of greater than 30% and consists of a homopolymer of butadiene or a copolymer of butadiene and a vinyl aromatic compound.

13. (Currently Amended): A process for the production of a linear or branched diene elastomer resulting from at least one conjugated diene, said elastomer comprising cyclic vinyl units in a mass content of greater than or equal to 15% and, prior to optional branching, having a number-average molecular weight falling within a range of from 10,000 to 60,000 g/mol, said process comprising the anionic polymerization of one or more monomers comprising at least one conjugated diene monomer, by a discontinuous reaction, in an inert aliphatic or alicyclic hydrocarbon solvent, of said monomer or monomers with a catalytic system comprising an organolithium initiator and a polar agent comprising two or more heteroatoms, the (polar agent:initiator) molar ratio being greater than 8,

wherein the at least one conjugated diene comprises butadiene.

14. (Currently Amended): A process for the production of a linear or branched diene elastomer resulting from at least one conjugated diene, said elastomer comprising cyclic vinyl units in a mass content of greater than or equal to 15% and, prior to optional branching, having a number-average molecular weight falling within a range of from 10,000 to 100,000 g/mol, said process comprising the anionic polymerization of one or more monomers comprising at least one conjugated diene monomer, by a continuous reaction, in an inert aliphatic or alicyclic hydrocarbon solvent, of said monomer or monomers with a catalytic system comprising an organolithium initiator and a polar agent comprising two or more heteroatoms, said system satisfying the following relationship:

(i) the (polar agent:initiator) molar ratio is greater than or equal to 3,

wherein the at least one conjugated diene comprises butadiene.

15. (Previously Presented): A process for the production of a linear or branched diene elastomer resulting from at least one conjugated diene, said elastomer comprising cyclic vinyl units in a mass content of greater than or equal to 15% and, prior to optional branching, having a number-average molecular weight falling within a range of from 10,000 to 300,000 g/mol, said process comprising the anionic polymerization of one or more monomers comprising at least one conjugated diene monomer, by a continuous reaction, in an inert aliphatic or alicyclic hydrocarbon solvent, of said monomer or monomers with a catalytic system comprising an organolithium initiator, a polar agent comprising two or more heteroatoms, and an alkali metal salt of an aliphatic or alicyclic alcohol, such that said system simultaneously satisfies the following three conditions:

- (i) the (polar agent:initiator) molar ratio is greater than or equal to 3.
- (ii) the (salt:initiator) molar ratio falls within a range of from 0.01 to 2, and
- (iii) the (salt:polar agent) molar ratio falls within a range of from 0.001 to 0.5.

16. (Currently Amended): A process for the production of a linear or branched diene elastomer according to Claim [[14]] 15, wherein the (polar agent:initiator) molar ratio is greater than or equal to 5.

17. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 16, wherein the (polar agent:initiator) molar ratio is greater than or equal to 10.

18. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 17, wherein the (polar agent:initiator) molar ratio is greater than or equal to 15.

19. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 15, wherein said (salt:polar agent) molar ratio falls within a range of from 0.001 to 0.1.

20. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 15, wherein said (salt:initiator) molar ratio falls within a range of from 0.01 to 0.6.

21. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 20, wherein said (salt:initiator) molar ratio falls within a range of from 0.01 to 0.2.

22. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 21, wherein said (salt:initiator) molar ratio falls within a range of from 0.3 to 0.6.

23. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 13, wherein said polar agent belongs to the group consisting of diamines and diethers.

24. (Previously Presented): A process for the production of a linear or branched diene elastomer resulting from at least one conjugated diene, said elastomer comprising cyclic vinyl units in a mass content of greater than or equal to 15% and, prior to optional branching, having a number-average molecular weight falling within a range of from 10,000 to 60,000 g/mol, said process comprising the anionic polymerization of one or more monomers comprising at least one conjugated diene monomer, by a discontinuous reaction, in an inert aliphatic or alicyclic hydrocarbon solvent, of said monomer or monomers with a catalytic system comprising an organolithium initiator and a polar agent comprising two or more heteroatoms, the (polar agent:initiator) molar ratio being greater than 8,

wherein said polar agent is tetramethylethylenediamine.

25. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 15, wherein said salt is a sodium salt of an aliphatic alcohol having from 3 to 12 carbon atoms.

26. (Currently Amended): A process for the production of a branched diene elastomer according to Claim ~~13~~15, which further comprises reacting the product of said polymerization with a coupling or starring agent in order to obtain said branched diene elastomer.

27-28. (Canceled)

29. (Previously Presented): A catalytic system according to Claim 31, wherein said (polar agent:initiator) molar ratio is greater than or equal to 15.

30. (Currently Amended): A catalytic system usable for producing, by continuous anionic polymerization of one or more conjugated dienes in an inert aliphatic or alicyclic hydrocarbon solvent, a linear diene elastomer according to Claim 1, wherein said system comprises an organolithium initiator, a polar agent comprising two or more heteroatoms and an alkali metal salt of an aliphatic or alicyclic alcohol, said system simultaneously satisfying the following three conditions:

- (iv) the (polar agent:initiator) molar ratio is greater than or equal to 10,
- (v) the (salt:initiator) molar ratio falls within a range of from 0.01 to 2, and
- (vi) the (salt:polar agent) molar ratio falls within a range of from 0.001 to 0.5, wherein said polar agent belongs to the group consisting of diamines and diethers.

31. (Previously Presented): A catalytic system usable for producing, by continuous anionic polymerization of one or more conjugated dienes in an inert aliphatic or alicyclic hydrocarbon solvent, a linear diene elastomer resulting from at least one conjugated diene, wherein said diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 50,000 to 300,000 g/mol,

wherein said system comprises an organolithium initiator, a polar agent comprising two or more heteroatoms and an alkali metal salt of an aliphatic or alicyclic alcohol, said system simultaneously satisfying the following three conditions:

- (iv) the (polar agent:initiator) molar ratio is greater than or equal to 10,
- (v) the (salt:initiator) molar ratio falls within a range of from 0.01 to 0.2 or from 0.3 to 2, and
- (vi) the (salt:polar agent) molar ratio falls within a range of from 0.001 to 0.1.

32. (Previously Presented): A catalytic system according to Claim 31, wherein said (salt:initiator) molar ratio falls within a range of from 0.01 to 0.2.

33. (Previously Presented): A catalytic system according to Claim 31, wherein said (salt:initiator) molar ratio falls within a range of from 0.3 to 0.6.

34. (Previously Presented): A catalytic system according to Claim 31, wherein said polar agent belongs to the group consisting of diamines and diethers.

35. (Previously Presented): A catalytic system usable for producing, by continuous or discontinuous anionic polymerization of one or more conjugated dienes in an inert aliphatic or alicyclic hydrocarbon solvent, a linear diene elastomer comprising cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within the range of from 10,000 to 60,000 g/mol, said system comprising an organolithium initiator and a polar agent comprising two or more heteroatoms, wherein the (polar agent:initiator) molar ratio is greater than or equal to 10,
wherein said polar agent is tetramethylethylenediamine.

36. (Previously Presented): A catalytic system according to Claim 30, wherein said salt is a sodium salt of an aliphatic alcohol having from 3 to 12 carbon atoms.

37. (Previously Presented): A process for the production of a linear or branched diene elastomer according to Claim 25, wherein said salt is sodium tert. amylate.

38. (Previously Presented): A catalytic system according to Claim 36, wherein said salt is sodium tert. amylate.

39. (Previously Presented): A catalytic system usable for producing, by continuous anionic polymerization of one or more conjugated dienes in an inert aliphatic or alicyclic hydrocarbon solvent, a linear diene elastomer resulting from at least one conjugated diene, wherein said diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 50,000 to 300,000 g/mol,

wherein said system comprises an organolithium initiator, a polar agent comprising two or more heteroatoms and an alkali metal salt of an aliphatic or alicyclic alcohol, said system simultaneously satisfying the following three conditions:

- (iv) the polar agent:initiator molar ratio is equal to or greater than 14.1,
- (v) the (salt:initiator) molar ratio falls within a range of from 0.01 to 2, and
- (vi) the (salt:polar agent) molar ratio falls within a range of from 0.001 to 0.5.

40. (Previously Presented): A linear diene elastomer resulting from at least one conjugated diene, wherein said diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 50,000 to 300,000 g/mol, which consists of a butadiene homopolymer or a copolymer of butadiene and a vinyl aromatic compound.

41. (Previously Presented): A linear diene elastomer according to Claim 40, wherein said number-average molecular weight falls within a range of from 60,000 to 300,000 g/mol.

42. (Previously Presented): A linear diene elastomer according to Claim 41, wherein said number-average molecular weight falls within a range of from 100,000 to 300,000 g/mol.

43. (Previously Presented): A linear diene elastomer according to Claim 40, wherein said mass content of cyclic vinyl units is greater than or equal to 20%.

44. (New): A linear diene elastomer according to Claim 40, wherein said mass content of cyclic vinyl units is greater than or equal to 35%.

45. (New): A branched diene elastomer resulting from at least one conjugated diene and capable of being obtained by reaction of a linear diene elastomer according to Claim 40 with a branching agent, wherein said branched diene elastomer comprises cyclic vinyl units in a mass content of greater than or equal to 15% and having a number-average molecular weight falling within a range of from 30,000 to 350,000 g/mol.

46. (New): A branched diene elastomer according to Claim 45, wherein said number-average molecular weight falls within a range of from 150,000 to 350,000 g/mol.

47. (New): A branched diene elastomer according to Claim 45, wherein said mass content of cyclic vinyl units is greater than or equal to 20%.

48. (New): A branched diene elastomer according to Claim 45, which comprises a mass fraction of units resulting from conjugated dienes of greater than 30%.

49. (New): A process for the production of a branched diene elastomer according to Claim 24, which further comprises reacting the product of said polymerization with a coupling or starring agent in order to obtain said branched diene elastomer.

50. (New): A catalytic system according to Claim 30, wherein said (salt:initiator) molar ratio falls within a range of from 0.01 to 0.2.

51. (New): A catalytic system according to Claim 30, wherein said (salt:initiator) molar ratio falls within a range of from 0.3 to 0.6.